UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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24941 7590 11/03/2004		EXAMINER
T LESTER WALLACE		SEFCHECK, GREGORY B

ART UNIT	PAPER NUMBER
2662	

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Please find below and/or attached an Office communication concerning this application or proceeding.

PTO 90C (Rev 10/03)

	Application No.	Applicant(s)
Office Action Summary	09/823,667	PARRUCK ET AL.
	Examiner	Art Unit	
	Gregory B Sefcheck	2662	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE _3_ MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on _30 March 2001_.

2a)☐ This action is **FINAL**.   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) _1-19_ is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) _1-19_ is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on _30 March 2001_ is/are: a)☒ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All b)☐ Some * c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☒ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _3/30/01; 9/20/01_.

4)☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ .

5)☐ Notice of Informal Patent Application (PTO-152)

6)☐ Other: _____.

DETAILED ACTION

- The Preliminary Amendment filed 3/30/2001 is acknowledged.

- Claims 20-33 have been cancelled.

- Claims 1-19 remain pending.

Information Disclosure Statement

1.   The information disclosure statement filed 3/30/2001 fails to comply with the

provisions of 37 CFR 1.97, 1.98 and MPEP § 609 because no copy or listing of a

reference corresponding the diagram and description of a line card submitted on pages

1-2 of the IDS has been provided.

> NOTE: References on page 4 of the IDS filed 3/30/2001 was received in proper
>
> form, with a listing and copy of each reference. The items in this part of the IDS
>
> have been considered and a copy of the initialed listing has been provided with
>
> this Office Action.

Claim Rejections - 35 USC § 102

2.   The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that

form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3.   Claims 1-5 and 11-18 are rejected under 35 U.S.C. 102(e) as being anticipated

by Suzuki (US006330239B1).

-    In regards to Claim 1,

Suzuki discloses an exchange apparatus (IP-ATM node) for exchanging data

between an ATM network and an IP network (Title; claim 1 – multi-service segmentation

and reassembly integrated circuit).

Referring to Figs. 9 and 10, Suzuki discloses a data path for handling both cell

and packet data received at an inputting portion (claim 1 - first bus interface) for both

packet data 11 and cell data 21 (claim 1 – cell and packet traffic pass over data path),

address solving portion 12/22 (claim 1 - lookup circuitry), address converting portion

13/23 (claim 1 - segmentation circuitry), assembling portion 14/24 (claim 1 - reassembly

circuitry), and outputting portion 16/26 (claim 1 - second bus interface; claim 1 – data

path from first interface to lookup to segmentation to reassembly to second interface;

claim 1 – lookup analyzes cell traffic to be processed in a first way; claim 1 – lookup

analyzes packet traffic to be processed in a second way).

-    In regards to Claims 2-5,

Suzuki discloses an exchange apparatus for exchanging data between an ATM

network and an IP network that covers all limitations of the parent claim.

Referring to Figs. 9 and 10, Suzuki shows that the IP-ATM node can receive cell

data and transmit the data in packet form as well as receive packet data and transmit

the data in cell form (claim 2,5 – first ingress mode such that output is to a cell-based

switch fabric via the second interface; claim 2,5 – second ingress mode such that output

is to a packet-based switch fabric via the second interface; claim 3,5 – first egress mode

such that traffic is received from a cell-based switch fabric via the first interface; claim

3,5 – second egress mode such that traffic is received from a packet-based switch

fabric via the first interface; claim 4 – ingress mode such that traffic output from IC to

switch fabric via second interface; claim 4 – egress mode such that traffic received on

IC from switch fabric via first interface).

        -    In regards to Claim 11,

Suzuki discloses an exchange apparatus (IP-ATM node) for exchanging data

between an ATM network and an IP network comprising elements as shown in

reference to claim 1.

Referring to Fig. 5, Suzuki shows a plurality of IP-ATM nodes in communication

over an ATM and IP network system (claim 11 – switching device comprising first and

second MS-SAR and a switch fabric).

Suzuki shows that the nodes are operable to exchange data between ATM and

packet protocols for interworking the ATM and IP networks (Figs. 6, 9, 10; Abstract; Col.

3-4, lines 1-21; claim 11 – flow into the first MS-SAR is first type, flow out of second MS-

SAR is second type; claim 11 – first and second types are any combination of ATM and

packet data).

- In regards to Claim 12,

Suzuki discloses an exchange apparatus for exchanging data between an ATM

network and an IP network that covers all limitations of the parent claim.

Suzuki discloses ATM cells involving the adaptation layers of ATM (Col. 3, lines

20-38; claim 12 – ATM involves AAL5 adaptation layer cells).

- In regards to Claims 13 and 14,

Suzuki discloses an exchange apparatus for exchanging data between an ATM

network and an IP network that covers all limitations of the parent claim.

Suzuki discloses how an ATM cell is encapsulated and decapsulated into an IP

datagram (Col. 3, lines 1-38; claim 13 – only one ATM cell encapsulated in a packet

output from the second MS-SAR when a single ATM cell is received on the first MS-

SAR; claim 14 – de-capsulated ATM cell output from second MS-SAR when a packet

encapsulating a single ATM cell is received on first MS-SAR).

- In regards to Claims 15 and 16,

Suzuki discloses an exchange apparatus for exchanging data between an ATM

network and an IP network that covers all limitations of the parent claim.

It is inherent that data output to an ATM network is switched at layer 2 while data

output to an IP network is routed at layer 3 as shown in the OSI model (claim 15 –

switching device is OSI layer 3 IP router; claim 16 – switching device is OSI layer 2

switch that does not perform IP routing).

In regards to Claims 17 and 18,

Suzuki discloses an exchange apparatus for exchanging data between an ATM

network and an IP network that covers all limitations of the parent claim.

Referring to Figs. 9 and 10, Suzuki shows that a data flow is processed and/or

exchanged based on the protocol of data received and the extracted and solved

addresses from the header of the received data flow (Figs. 3 and 4; Col. 8, lines 20-64;

claim 17 – processing a flow with a first and second egress type; claim 17 – indication of

type present in the flow; claim 18 – indication of type being a plurality of bits in the

header).

Claim Rejections - 35 USC § 103

4.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set
> forth in section 102 of this title, if the differences between the subject matter sought to be patented and
> the prior art are such that the subject matter as a whole would have been obvious at the time the
> invention was made to a person having ordinary skill in the art to which said subject matter pertains.
> Patentability shall not be negatived by the manner in which the invention was made.

5.   Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Suzuki in

view of Lemieux (US006631128B1).

-      In regards to Claim 6,

Suzuki discloses an exchange apparatus for exchanging data between an ATM

network and an IP network that covers all limitations of the parent claim (claim 6 – cell

traffic is ATM).

Suzuki discloses packet traffic conforming to the Internet Protocol (IP) but does not explicitly show the packet traffic to be MPLS.

Lemieux discloses routing nodes interconnected within a network that are not configured to utilize a single type of switching technology (Abstract). Lemieux discloses a network divided into sub-networks comprising IP over MPLS and ATM (Col. 5, lines 24-38; claim 6 – packet traffic is MPLS).

It would have been obvious to one of ordinary skill in the art at the time of the invention to apply the apparatus of Suzuki to IP traffic over MPLS, as shown by Lemieux. The apparatus of Suzuki would apply to multiple types of packet traffic. The extension of IP traffic to IP over MPLS traffic would enable further integration of network types.

6.   Claims 7 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Suzuki in view of Kao et al. (US006535513B1), hereafter Kao.

-      In regards to Claims 7 and 8,

Suzuki discloses an exchange apparatus for exchanging data between an ATM network and an IP network that covers all limitations of the parent claim.

Suzuki does not explicitly show the data path extending from the segmentation to reassembly via a memory manager, where cell and/or packet data is temporarily stored in a plurality of queues.

Kao discloses a line card circuit in a switching apparatus for performing multi-service segmentation and reassembly between various networks. Referring to Fig. 6 and lines 30-46 of column 11, Kao discloses a data path from the first interface 616 that to multi-service engine 614 to perform lookup mapping and queuing in VC queues 612. Furthermore, Kao discloses SAR engine 610 for performing segmentation and reassembly and manages the scheduling of data forwarding from the VC queues 612 to the second bus interface 602 that connects to a switch fabric. Kao discloses that the data path can accommodate processing of both cell and packet traffic in both directions to/from a correspond network or switch fabric (Col. 11-12, lines 54-3; claim 7 – IC comprises memory manager circuitry wherein the data path extends from segmentation to reassembly via the memory manager; claim 8 – cell traffic is ATM, temporarily stored in one of plurality of equal size buffers; claim 8 – packet segmented into plurality of chunks and temporarily stored in buffers).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the apparatus of Suzuki by temporarily storing the cell and packet data in fixed size buffers and managing the transferring of data, as shown by Kao. This modification would allow the apparatus to account for timing requirements of particular data, enabling priority status to be given to cells/packets in a particular data flow or having specific latency requirements while other data is queued.

7.   Claims 9 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over

Suzuki in view of Dowd et al. (US006615358B1), hereafter Dowd.

      -    In regards to Claims 9 and 10,

Suzuki discloses an exchange apparatus (IP-ATM node) for exchanging data

between an ATM network and an IP network.

Referring to Figs. 9 and 10, Suzuki discloses a data path for handling both cell

and packet data received at an inputting portion (claim 1 - first bus interface) for both

packet data 11 and cell data 21 (claim 9 – cell and packet traffic pass over data path),

and outputting portion 16/26 (claim 9 - second bus interface).

Suzuki does not explicitly show a segmentation trailer generating means or

checking means between the two interfaces.

Dowd discloses processing connection-oriented and connectionless datagrams

over a connection-oriented network (Title). Dowd discloses transmission of IP packets

over ATM networks (Col. 9, lines 6-13). Dowd shows that IP packets are divided into

segments and embedded in an ATM cell. A flow tag is appended to the segments so

the packet can be reconstructed after transmission. Flow tags are checked against an

IP approved list (Col. 9, lines 50-57; Col. 11, lines 22-29; claim 9 – generating

segmentation trailer; claim 9 – checking segmentation trailer; claim 9 – data path from

first interface to generating means to checking means to second interface; claim 10 –

ingress mode for segmenting a packet into a plurality of segments, generating trailer,

appending trailer to one of segments, output in the form of switch cells; claim 10 –

egress mode for outputting packet onto a network, checking plurality of received

segments, a last one including trailer, checking the trailer).

It would have been obvious to one of ordinary skill in the art at the time of the

invention to modify the apparatus of Suzuki by generating and checking a segmentation

trailer when transmitting segmented IP packets within ATM cells. This would ensure

proper reconstruction of the IP packet after transmission, since the segments in the

ATM cells are transmitted asynchronously.

8.   Claim 19 is rejected under 35 U.S.C. 103(a) as being unpatentable over Suzuki

in view of Suzuki (US005796736A), hereafter Suzuki '736.

-     In regards to Claim 19,

Suzuki discloses an exchange apparatus for exchanging data between an ATM

network and an IP network that covers all limitations of the parent claim.

Suzuki does not explicitly disclose the use of port IDs for accessing information

on the type of flows received at each input port.

Suzuki '736 discloses ATM network discovery (Title). Suzuki '736 shows that

port identifiers may be used to identify connection relationships in a network. Tables

are stored for each port so data flows from neighboring switches and terminals can be

identified quickly (Figs. 10 and 16, Abstract; claim 19 – flow received from one of

plurality of input ports; claim 19 – each port having port ID; claim 19 – using port ID to access information on type of flow).

It would have been obvious to one of ordinary skill in the art at the time of the invention to adapt the apparatus of Suzuki by utilizing input port IDs to identify a data flows from neighboring nodes, as taught by Suzuki '736, thereby providing a way of tracking the type of received data without accessing header information of the received data.

Conclusion

9.   The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

- Chong et al. (US 20040028067A1) discloses two-dimensional queuing/de-queuing methods and systems

- Nagami et al. (US 20040015590A1) discloses a network interconnection apparatus, network node apparatus, and packet transfer method for high speed, large capacity inter-network communication

- Kim (US 20030128688A1) discloses ATM based MPLS-LER system and method for establishing connection

- Zheng et al. (US006611522B1) discloses a quality of service facility in a device for performing IP forwarding and ATM switching

- Oda et al. (US006522667B1) discloses network interworking device for IP network / ATM network
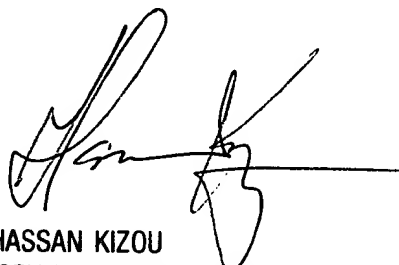
- Miki et al. (US006424662B1) discloses a router apparatus using ATM switch

- Honda et al. (US006147999A) discloses an ATM switch capable of routing IP packet

- Bernet et al. (US005764645A) discloses IP/ATM network adaptation

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Gregory B Sefcheck whose telephone number is 571-272-3098. The examiner can normally be reached on Monday-Friday, 8:00am-4:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hassan Kizou can be reached on 571-272-3088. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

GBS
10-29-2004

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